CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence (along with any paper referred to as being attached or enclosed) is being submitted *via* the USPTO EFS Filing System on the date shown below to Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Date: October 24, 2008 /Michelle Folger/
Michelle Folger

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:			
Applicant(s):	Joshua T. Goodman, *et al.*	Examiner:	Farid Homayounmehr
Serial No:	10/669,545	Art Unit:	2139
Filing Date:	September 23, 2003		

Title: ORDER-BASED HUMAN INTERACTIVE PROOFS (HIPS) AND AUTOMATIC DIFFICULTY RATING OF HIPS

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Appellants' representative submits this brief in connection with an appeal of the above-identified patent application. If any additional fees are due and/or are not covered by the credit card, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1063 [MSFTP440US].

I. Real Party in Interest (37 C.F.R. §41.37(c)(1)(i))

The real party in interest in the present appeal is Microsoft Corporation, the assignee of the subject application.

II. Related Appeals and Interferences (37 C.F.R. §41.37(c)(1)(ii))

Appellants, appellants' legal representative, and/or the assignee of the subject application are not aware of any appeals or interferences which may be related to, will directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims (37 C.F.R. §41.37(c)(1)(iii))

Claims 1, 8-11, 15-25, 27, and 29-31 stand rejected by the Examiner. Claims 2-7, 12-14, 26, 28 and 32-70 are canceled. The rejection of claims 1, 8-11, 15-25, 27, and 29-31 is being appealed.

IV. Status of Amendments (37 C.F.R. §41.37(c)(1)(iv))

No claim amendments have been entered subsequent to the Final Office Action dated June 27, 2008.

V. Summary of Claimed Subject Matter (37 C.F.R. §41.37(c)(1)(v))

A. Independent Claim 1

Independent claim 1 recites a system that facilitates identifying human interaction. (*See e.g.,* pg. 9, line 5-pg. 10, line 7, Fig. 1, ref. no. 100). The system comprises a computer processor for executing the following software components, and the software components are recorded on a computer-readable medium. (*See e.g.,* pg. 7, lines 23-30). An access control component that controls access to one of a computer-based action and computer-based application. (*See e.g.,* pg. 9, lines 5-12, Fig. 1, ref. nos. 110, 120 and 130). An identification component that facilitates determining that access is initiated by a human, the identification component presenting an order-based human interactive proof (HIP) problem to be solved before access is allowed. (*See e.g.,* pg. 9,

lines 13-29, Fig. 1, ref. no. 140). The order-based problem being a "start to end" HIP and comprising an arrangement of a plurality of objects whereby a user is asked to correctly identify at least a subset of the objects as well as to identify them in a particular order, the order being based at least in part upon a set of instructions provided to the user, and to find a path of a consistent type and identify objects such as characters along the path, wherein at least a first subset of the objects being at least partially obscured by a second subset of objects, and wherein the path of a consistent type comprises a subset of objects which are connected by a consistent type of connector, the connector being selected from a group consisting of any one of arrows, lines, dotted lines, dashed lines, and shapes, and the identification component communicating with an order-based problem database to retrieve order-based problems as needed. (*See e.g.,* pg. 10, lines 8-27 and pg. 11, lines 1-22, Fig. 2, ref. nos. 200, 210 and 220). Wherein, the order-based HIP problem utilizes three-dimensional ordering, and a user is given a three-dimensional image and asked to identify order of characters from front to back, from left to right, and from largest object to smallest object, and wherein size of the characters and/or size of shapes and/or objects employed in the three-dimensional image is varied, and wherein a sufficient number of visual elements that provide hints of correct order and hints of identities of the characters or objects is included in the three-dimensional ordering to make the HIP problem solvable by a human. (*See e.g.,* pg. 11, line 23-pg. 12, line 24, Fig. 3, ref. nos. 300, 310 and 320). And, wherein the objects comprise images, pictures, shapes, characters, and other visual elements which are identifiable by a human, and wherein any one of the images, pictures, shapes, characters, and other visual elements vary in at least one of size, dimension, color, and distortion. (*See e.g.,* pg. 11, lines 18-22).

B. Independent Claim 25

Independent claim 25 recites a method that facilitates identifying human interaction comprising: presenting an order-based HIP to a user desiring access to at least one of a HIP-controlled computer-based action and a HIP-controlled computer-based application, the order-based HIP being retrieved from a HIP database. (*See e.g.,* pg. 19, line 26-pg. 20, line 4, Fig. 8, ref. nos. 800 and 810). Then, requesting the user to solve the order-based HIP to gain the access. (*See e.g.,* pg. 20, lines 5-16, Fig. 8, ref. no. 820).

Wherein, solving the order-based HIP, comprises: viewing an image comprising a plurality of objects; identifying at least a subset of the objects, the subset of objects determined at least in part upon a set of given instructions, wherein at least a first subset of the objects being at least partially obscured by a second subset of objects; and ordering the at least a subset of the objects, the ordering determined at least in part upon the set of given instructions. (*See e.g.,* pg. 10, lines 15-27). Then, determining whether access should be given based at least in part on the user's response to the HIP. (*See e.g.,* pg. 20, lines 5-16, Fig. 8, ref. no. 820). And, utilizing three-dimensional ordering in the order-based HIP problem, wherein a user is given a three-dimensional image and asked to identify order of characters from front to back, from left to right, and from largest object to smallest object. (*See e.g.,* pg. 11, lines 23-31). Finally, providing a sufficient number of visual elements that provide hints of correct order and hints of identities of the characters or objects in the three-dimensional ordering to make the HIP problem solvable by a human. (*See e.g.,* pg. 12, lines 22-24).

VI. Grounds of Rejection to be Reviewed on Appeal (37 C.F.R. §41.37(c)(1)(vi))

A. Whether claims 1, 8-11, 15-25, 27, and 29-31 are unpatentable under 35 U.S.C. §103(a) as being obvious over Pinkas *et al.* (US 7,149,899), in view of Mizrah (US 2004/0225880), and further in view of "Early Learning Grades PreK-2 Education Standards Correlations" published on the web in 2002.

VII. Argument (37 C.F.R. §41.37(c)(1)(vii))

A. Rejection of Claims 1, 8-11, 15-25, 27 and 29-31 Under 35 U.S.C. §103(a)

Claims 1, 8-11, 15-25, 27, and 29-31 stand rejected under 35 U.S.C. §103(a) as being obvious over Pinkas *et al.* (US 7,149,899), in view of Mizrah (US 2004/0225880), and further in view of "Early Learning Grades PreK-2 Education Standards Correlations" published on the web in 2002. It is respectfully requested that this rejection should be withdrawn for at least the following reasons. Pinkas *et al.*, Mizrah and the PreK-2

Standard, individually or in combination, do not teach or suggest each and every element as set forth in the subject claims.

The claimed subject matter relates to a system and/or methodology for generating order-based human interactive proofs (HIPs) as well as systems and methods that facilitate rating their difficulty automatically. In particular, independent claim 1 recites a system that facilitates identifying human interaction comprising: ... ***wherein the order-based HIP problem utilizes three-dimensional ordering, and a user is given a three-dimensional image and asked to identify order of characters from front to back, from left to right, and from largest object to smallest object, and wherein size of the characters and/or size of shapes and/or objects employed in the three-dimensional image is varied, and wherein a sufficient number of visual elements that provide hints of correct order and hints of identities of the characters or objects is included in the three-dimensional ordering to make the HIP problem solvable by a human;***.... The cited references, individually or in combination, fail to teach or suggest such aspects of the claimed subject matter.

Pinkas *et al.* discloses a method for establishing a secure channel between a user and a computer application. The method is performed by rendering to the user a randomly selected identifier; receiving input from the user based on both the randomly selected identifier and a secret identifier associated with the user; determining, based on the input whether the user demonstrates knowledge of the secret identifier; and authenticating or not authenticating the user based upon the outcome of said determining step. (*See* pg. 1, paragraph [0011]).

In contrast, appellants' claimed subject matter discloses a system that facilitates identifying human interaction. The system utilizes order-based HIPs to identify whether the user is human. The order-based HIPs utilize three-dimensional ordering ("3-D HIP"). Given a three-dimensional image, a user is asked to identify the order of characters from front to back, from left to right, and/or from largest object to smallest object. This type of order-based HIP requires depth computation(s) which tend to be simpler for humans than for computers. To further increase the effectiveness and/or difficulty of the HIP, the size of the characters and/or the size of shapes and/or objects employed in the image can be varied. Moreover, the 3-D HIP can also include a sufficient number of visual elements

that provide hints of the correct order and/or hints of the identities of the characters or objects to make it solvable by a human. (*See* pg. 11, line 24-pg. 12, line 24).

Pinkas *et al.* merely discloses establishing a secure channel between a human user and an application running on a computer system, *via* generating a unique identifier (PIN) associated with a user. Pinkas *et al.* presents an image to a user and the user must identify the differences between the identifier and the PIN. The secure application then compares the modified identifier with the PIN to determine if the modified identifier corresponds to the PIN. If so, then the user is authenticated. (*See* pg. 2, paragraph [0021]). Pinkas *et al.* does not disclose an order-based HIP that utilizes three-dimensional ordering. Pinkas *et al.* merely discloses a random identifier and a random image, wherein the random image comprises the random identifier in a format that is understandable to the user but not easily understandable to an unauthorized application.

The Examiner states that Pinkas *et al.* teaches the order-based problem being a start to end HIP wherein a user is required to find a path of a consistent type and identify objects such as characters along the path. (*See* Final Office Action dated 6-27-08, pg. 4). Pinkas *et al.* merely discloses that a PIN must be identified by the user and returned to the server for authentication. The PIN must be entered in sequence, but does not require recognizing characters along a path from start to end.

Mizrah does not cure the deficiencies of Pinkas *et al.* with respect to independent claim 1, Mizrah discloses an interactive method for authentication of a client in a network environment which utilizes first and second "what user knows" authentication factors. The first and second "what user knows" authentication factors are algorithmically and parametrically independent. (*See* pg. 3, paragraph [0065]).

As stated *supra*, appellants' claimed subject matter discloses order-based HIPs that utilize three-dimensional ordering ("3-D HIP"). Given a three-dimensional image, a user is asked to identify the order of characters from front to back, from left to right, and/or from largest object to smallest object. Moreover, the 3-D HIP can also include a sufficient number of visual elements that provide hints of the correct order and/or hints of the identities of the characters or objects to make it solvable by a human. Mizrah merely discloses use of a static password and data entry fields corresponding to random partial subsets of a data set. The server prompts a user to enter a user name into a field, which is

returned to the authentication server. If the user name is valid, then the authentication server identifies a random partial subset of data fields from the ordered data set of data fields. A user is then prompted to fulfill input field values in the random partial subset of data fields. If the input data matches the field contents, then successful authentication is signaled to the user. Whereas, appellants' claimed subject matter discloses order-based HIPs to identify whether the user is human.

The Examiner states that Mizrah teaches the art of using images recognizable by humans for authenticating a human being. However, Pinkas *et al.* in view of Mizrah does not explicitly show the use of 3-D images for the same purpose. (*See* Final Office Action dated 6-27-08, pg. 6). In contrast, appellants' claimed subject matter utilizes order-based HIPs to identify whether the user is human. The order-based HIPs utilize three-dimensional ordering ("3-D HIP"), wherein a user is asked to identify the order of characters from front to back, from left to right, and/or from largest object to smallest object.

Moreover, the PreK-2 Standard does not cure the deficiencies of Pinkas *et al.* and Mizrah with respect to independent claim 1, the PreK-2 Standard merely discloses that children learn to recognize, name, draw, compare and sort two and three-dimensional shapes. The PreK-2 Standard does not disclose order-based HIPs that utilize three-dimensional ordering ("3-D HIP"), as in appellants' claimed subject matter. Specifically, appellants' claimed system provides a three-dimensional image, wherein a user is asked to identify the order of characters from front to back, from left to right, and/or from largest object to smallest object. Moreover, the 3-D HIP can also include a sufficient number of visual elements that provide hints of the correct order and/or hints of the identities of the characters or objects to make it solvable by a human.

Further, independent claim 25 recites a method that facilitates identifying human interaction, comprising: ... ***utilizing three-dimensional ordering in the order-based HIP problem, wherein a user is given a three-dimensional image and asked to identify order of characters from front to back, from left to right, and from largest object to smallest object; and providing a sufficient number of visual elements that provide hints of correct order and hints of identities of the characters or objects in the three-dimensional ordering to make the HIP problem solvable by a human.***

As stated *supra*, Pinkas *et al.* merely discloses a random identifier and a random image, wherein the random image comprises the random identifier in a format that is understandable to the user but not easily understandable to an unauthorized application. And, Mizrah merely discloses use of a static password and data entry fields corresponding to random partial subsets of a data set. The plurality of random partial subsets of data are presented to a user as sets of field position numbers. And, the PreK-2 Standard merely discloses that children learn to recognize, name, draw, compare and sort two and three-dimensional shapes. Whereas, appellants' claimed system provides a three-dimensional image, wherein a user is asked to identify the order of characters from front to back, from left to right, and/or from largest object to smallest object. Moreover, the 3-D HIP can also include a sufficient number of visual elements that provide hints of the correct order and/or hints of the identities of the characters or objects to make it solvable by a human. This type of order-based HIP requires depth computation(s) which tends to be simpler for humans than for computers.

In view of the aforementioned deficiencies of the cited references, it is respectfully submitted that this rejection be withdrawn with respect to independent claims 1 and 25 (and claims 8-11, 15-24, 27 and 29-31 which respectively depend there from). Accordingly, it is respectfully requested that these claims be deemed allowable.

E. Conclusion

For at least the above reasons, the claims currently under consideration are believed to be patentable over the cited references. Accordingly, it is respectfully requested that the rejections of claims 1, 8-11, 15-25, 27, and 29-31 be reversed.

If any additional fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063[MSFTP440US].

Respectfully submitted,
AMIN, TUROCY & CALVIN, LLP

/Marisa J. Zink/
Marisa J. Zink
Reg. No. 48,064

AMIN, TUROCY & CALVIN, LLP
24th Floor, National City Center
1900 East 9th Street
Telephone: (216) 696-8730
Facsimile: (216) 696-8731

VIII. Claims Appendix (37 C.F.R. §41.37(c)(1)(viii))

1. A system that facilitates identifying human interaction comprising a computer processor executing software components, the software components recorded on a computer-readable medium and being executed by the computer processor :

an access control component that controls access to one of a computer-based action and computer-based application; and

an identification component that facilitates determining that access is initiated by a human, the identification component presenting an order-based human interactive proof (HIP) problem to be solved before access is allowed, the order-based problem being a "start to end" HIP and comprising an arrangement of a plurality of objects whereby a user is asked to correctly identify at least a subset of the objects as well as to identify them in a particular order, the order being based at least in part upon a set of instructions provided to the user, and to find a path of a consistent type and identify objects such as characters along the path, wherein at least a first subset of the objects being at least partially obscured by a second subset of objects, and wherein the path of a consistent type comprises a subset of objects which are connected by a consistent type of connector, the connector being selected from a group consisting of any one of arrows, lines, dotted lines, dashed lines, and shapes, and the identification component communicating with an order-based problem database to retrieve order-based problems as needed;

wherein the order-based HIP problem utilizes three-dimensional ordering, and a user is given a three-dimensional image and asked to identify order of characters from front to back, from left to right, and from largest object to smallest object, and wherein size of the characters and/or size of shapes and/or objects employed in the three-dimensional image is varied, and wherein a sufficient number of visual elements that provide hints of correct order and hints of identities of the characters or objects is included in the three-dimensional ordering to make the HIP problem solvable by a human; and

wherein the objects comprise images, pictures, shapes, characters, and other visual elements which are identifiable by a human, and wherein any one of the

images, pictures, shapes, characters, and other visual elements vary in at least one of size, dimension, color, and distortion.

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. The system of claim 1, wherein at least a portion of the connectors are obscured by at least one of the following: at least one translucent shape and at least one opaque shape.

9. The system of claim 8, the at least one translucent shape obscuring larger portions of the connectors.

10. The system of claim 8, the at least one opaque shape obscuring smaller portions of the connectors.

11. The system of claim 1, the connectors being arrows whereby a user is required to identify a connected sequence of arrows, the arrows being of a same type, from a start position to an end position.

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. The system of claim 1, wherein the objects comprise any one of letters and numbers.

16. The system of claim 1, wherein the objects vary in size.

17. The system of claim 1, wherein the image comprises one or more depth clues, the clues comprising any one of shadows, reflections, fog, and partial occlusions.

18. The system of claim 17, the partial occlusions comprising at least a first object blocking at least a portion of a second object.

19. The system of claim 17, the shadows being produced by multiple light sources.

20. The system of claim 1, the order-based problem being a maze HIP wherein a user is required to maneuver an object through a maze configuration from a start position to an end position and to identify characters from a start position to an end position in the maze.

21. The system of claim 20, the object being a rectangular block.

22. The system of claim 20, the maze HIP configuration comprising a plurality of objects arranged in such a way as to provide a single path for the object to maneuver through a subset of the plurality of objects to reach the end position.

23. The system of claim 22, the plurality of objects comprising at least one of geometric shapes, rounded shapes, pointed shapes, angled shapes, and images of real objects.

24. The system of claim 23, wherein recognition of the images of real objects is required to determine the path for the odd-shaped object.

25. A method that facilitates identifying human interaction comprising:

presenting an order-based HIP to a user desiring access to at least one of a HIP-controlled computer-based action and a HIP-controlled computer-based application, the order-based HIP being retrieved from a HIP database;

requesting the user to solve the order-based HIP to gain the access, solving the order-based HIP, comprising:

viewing an image comprising a plurality of objects;

identifying at least a subset of the objects, the subset of objects determined at least in part upon a set of given instructions, wherein at least a first subset of the objects being at least partially obscured by a second subset of objects; and

ordering the at least a subset of the objects, the ordering determined at least in part upon the set of given instructions;

determining whether access should be given based at least in part on the user's response to the HIP;

utilizing three-dimensional ordering in the order-based HIP problem, wherein a user is given a three-dimensional image and asked to identify order of characters from front to back, from left to right, and from largest object to smallest object; and

providing a sufficient number of visual elements that provide hints of correct order and hints of identities of the characters or objects in the three-dimensional ordering to make the HIP problem solvable by a human.

26. (Canceled)

27. The method of claim 25, the objects comprising any one of the following: shapes, images, letters, and numbers.

28. (Canceled)

29. The method of claim 25, at least a subset of the objects being distorted.

30. The method of claim 25, further comprising allowing access to at least one of the computer-based action and computer-based application when an acceptable answer to the HIP is given.

31. The method of claim 30, the acceptable answer being at least one of the following:

a correct answer; and

an answer consistently received from a percentage of users, whereby the percentage exceeds a minimum threshold.

32-70. (Canceled)

IX. Evidence Appendix (37 C.F.R. §41.37(c)(1)(ix))

None.

X. Related Proceedings Appendix (37 C.F.R. §41.37(c)(1)(x))

None.